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EXAMINER

MEDLEY, S

ART UNIT

PAPER NUMBER

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**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

**GROUP 2100**  
Paper No. 14

Application Number: 08/422,360  
Filing Date: April 17, 1995  
Appellant(s): Lowenstein

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William F. Esser  
For Appellant

**EXAMINER'S ANSWER**

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This is in response to Appellant's brief on appeal filed 9-27-96.

**(1) *Real Party in Interest***

A statement identifying the real party in interest is contained in the brief.

**(2) *Related Appeals and Interferences***

A statement identifying the related appeals and interferences which will directly affect or be directly affected by or have a bearing on the decision in the pending appeal is contained in the brief.

**(3) *Status of Claims***

The statement of the status of the claims contained in the brief is correct.

**(4) *Status of Amendments After Final***

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

**(5) *Summary of Invention***

The summary of invention contained in the brief is correct.

**(6) *Issues***

The appellant's statement of the issues in the brief is substantially correct. The changes are as follows: the 35 USC 112 first and fourth paragraph rejections have been dropped.

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**(7) *Grouping of Claims***

Appellant's brief includes a statement that claims 1-21 do not stand or fall together and provides reasons as set forth in 37 CFR 1.192(c)(7) and (c)(8).

**(8) *Claims Appealed***

The copy of the appealed claims contained in the Appendix to the brief is correct.

**(9) *Prior Art of Record***

The following is a listing of the prior art of record relied upon in the rejection of claims under appeal.

3,881,137	Thanawala	4-1975
3,849,677	Stacey et al.	11-1974
5,243,648	Gilardi et al.	9-1993

**(10) *New Prior Art***

No new prior art has been applied in this examiner's answer.

**(11) *Grounds of Rejection***

The following ground(s) of rejection are applicable to the appealed claims:

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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Claims 1-11 and 20-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over the acknowledged prior art (page 1, lines 1 *et seq.*) in view of Stacey et al. and Thanawala. The acknowledged prior art, beginning on page 1, lines 1 *et seq.*, discloses that there are known inventions that improve the power factor of power systems and suppress harmonic currents, specifically for nonlinear loads which include passive components for filtering. The prior art makes reference to the types of nonlinear loads (page 1 lines 17, plus) which cause adverse effects, such as single phase switching power supplies. The acknowledged prior art further recognizes that filtering of harmonics is known in three phase systems (Takeda et al. reference, disclosed on page 2, line 18 of the instant specification). The acknowledged prior art does not disclose a series connected RCL filter for suppressing harmonic currents.

Stacey et al. shows in figure 5 a series connected filter between the source and load which includes passive components (60 and 62), where the filter may be tuned to the third harmonic. Stacey et al. however, does not show a passive resistor in parallel with 60 and 62, but rather an active resistor. Thanawala shows in figures 13 a passive resistor in parallel with a capacitor  $C_p$  and reactor  $L_p$  used for damping harmonic currents (see abstract for example). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the prior art with Stacey et al., since Stacey et al. teaches a series connected filter for suppressing harmonic currents, where the series suppressor may be tuned to the third harmonic.

It would have further been obvious to one of ordinary skill in the art at the time of the invention to modify the prior art and Stacey et al. with the passive resistor in parallel with a

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passive capacitor and reactor as taught by Thanawala, since doing so would provide a third order harmonic filter in a simpler arrangement.

Claims 12-15 and 17-19 are rejected under 35 U.S.C. § 103 as being unpatentable over the acknowledged prior art in view of Stacey et al. and Thanawala as applied to claims 1-11 above, and further in view of Gilardi et al. Claims 1-11 were rejected as being obvious over the acknowledged prior art in view of Stacey et al.; however, none of the cited references disclose a housing for the filter device, an isolation transformer, or a computer as the nonlinear load.

Gilardi et al. shows in figures 1 and 2 a housing for the filter arrangement of figure 5, where the components are enclosed for convenient transportation and connection to a load with sockets 17 for plug-ins. Gilardi et al. further shows an isolation transformer 37 in Fig. 6, and a computer connected as the nonlinear load in Fig. 1. It would have been obvious to one of ordinary skill in the art at the time of the invention to house the filter arrangement of the prior art and Stacey et al. in the Gilardi et al. enclosure and to add the Gilardi et al. transformer to the protection circuit, since doing so would provide a convenient transportable module for connecting directly to a load and for providing isolation between a source and a load, where the load may be a computer as further taught by Gilardi et al.

The Examiner takes official notice that current sensing and subsequently current limiting is well known to those skilled in the art and that it would have been an obvious modification to the Stacey et al. filter to detect a high current and limit the current in order to protect the load from excessive current. It would have lastly been obvious to one having ordinary skill in the art at the

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time the invention was made to physically mount the housed filter into any rack, or similar structure (i.e. utility cart) as doing so would be within the level of one of ordinary skill and since doing so would not change the overall functionality of the claimed filter.

**(12) *New Ground of Rejection***

This examiner's answer does not contain any new ground of rejection.

**(13) *Response to argument***

Appellant argues on page 9 of the brief, paragraph III that the acknowledged prior art fails to mention filter devices for use in three phase electrical systems in any portion of Appellant's specification. The examiner respectfully disagrees. Page 1, lines 20-23 describes that harmonic currents in each phase can greatly increase the amount of current in the neutral line, despite an even load distribution among three phases in the power system. Page 2, continues with known *filtering* devices used in various circuits. Included, is the prior art filtering disclosed in Takeda et al. (4,812,669) in the background of the instant specification. Clearly shown in Figs. 3 and 8 of Takeda et al. are filters for each phase of a three phase system. It was this "acknowledged prior art" that the examiner was relying on to teach three phase filtering as stated in the final rejection (Paper No. 7, page 7).

Appellant next argues that (page 10 and throughout brief) that no references cited discuss the problems associated with neutral currents. The "neutral currents" which Appellant refers to are harmonic currents (see page 1, lines 26-29), as they are interchangeably used throughout. Appellant acknowledged on page 2, lines 2-7, for example that devices are known for suppressing

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harmonic currents when using nonlinear devices in power systems. Therefore, it is the examiner's position that the acknowledged prior art addresses and discusses the problems associated with neutral currents (i.e. harmonic currents).

Appellant argues that the Stacey hybrid filter discloses an active device which generates a ripple current ... under all conditions of input frequency and passive component variations and that altering the active components with a passive resistor would destroy the Stacey device. Column 7, lines 5-10 states that the active element will not come into play, provided that the hybrid filter is tuned to the ripple frequency. That is, if the hybrid filter is tuned to precisely the third harmonic frequency, the active elements will not create a ripple current as suggested by Appellant. Therefore, adding a resistor to properly tune the filter to a third order harmonic would likewise not destroy the Stacey et al. device, since if the filter is properly tuned, the active shunt will not generate a ripple current, and therefore is not needed.

Appellant argues that there is no suggestion for modifying the Stacey filter (active components) with the Thanawala passive resistor. One would have been motivated at the time the invention was made to modify the Stacey filter with the passive Thanawala resistor, since doing so would properly tune the filter for third order harmonic filtering, thereby obviating the need for generating a ripple current (no need for the extra active components). Appellant argues that there is no suggestion to replace the active components with a passive resistor, thereby forming a passive filter. Stacey et al. acknowledges in the background section of the specification, that passive filtering is known (see column 1, lines 13-30). The problem that the



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Stacey et al. device attempts to solve is tuning a single filter for any situation, that is the device is a "hybrid" filter. Certainly in Appellant's case where third harmonic filtering is desired, there would be no need for the active component, which could be replaced by passive components only, as even recognized by Stacey et al.

Appellant argues that the language "consisting of" in claim 7 is closed in that only those elements recited and no more are what's being claimed. The examiner agrees that "consisting of" is closed language. However, it is the examiner's position as stated above that if the filter is properly tuned to the third harmonic there is no need for the active Stacey et al. components, as even suggested by the background section of the Stacey et al. reference. That is, a filter tuned to the third harmonic may consist of only passive elements.

Regarding claims 12-15 and 17-19, Appellant argues that the combination fails to show an isolation transformer, an equipment rack with airflow, and a computer as the nonlinear load. Gilardi et al. clearly shows an isolation transformer 37 and a computer connected to a filter, and therefore this argument is moot. Furthermore, it is the examiner's position that placing the filter housing in any mechanical structure would have been an obvious variation of the invention, as this is a mere intended use for the invention.

Appellant also argues that the combination fails to disclose a device for reducing currents with a current controlling means with a current limiting circuit and a switch. As stated in the Final rejection (paper No. 7), Appellant presented a patent to show that these components are well known to overcome the 112 first paragraph rejection (see paper number 6 page 9, last paragraph

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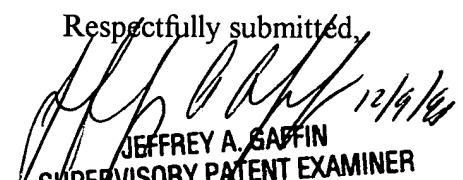
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to page 10). It is the examiner's position that these components are well known as conceded to by Appellant.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

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JEFFREY A. GAFFIN  
SUPERVISORY PATENT EXAMINER  
GROUP 2100

Jeff Gaffin

  
12/9/96